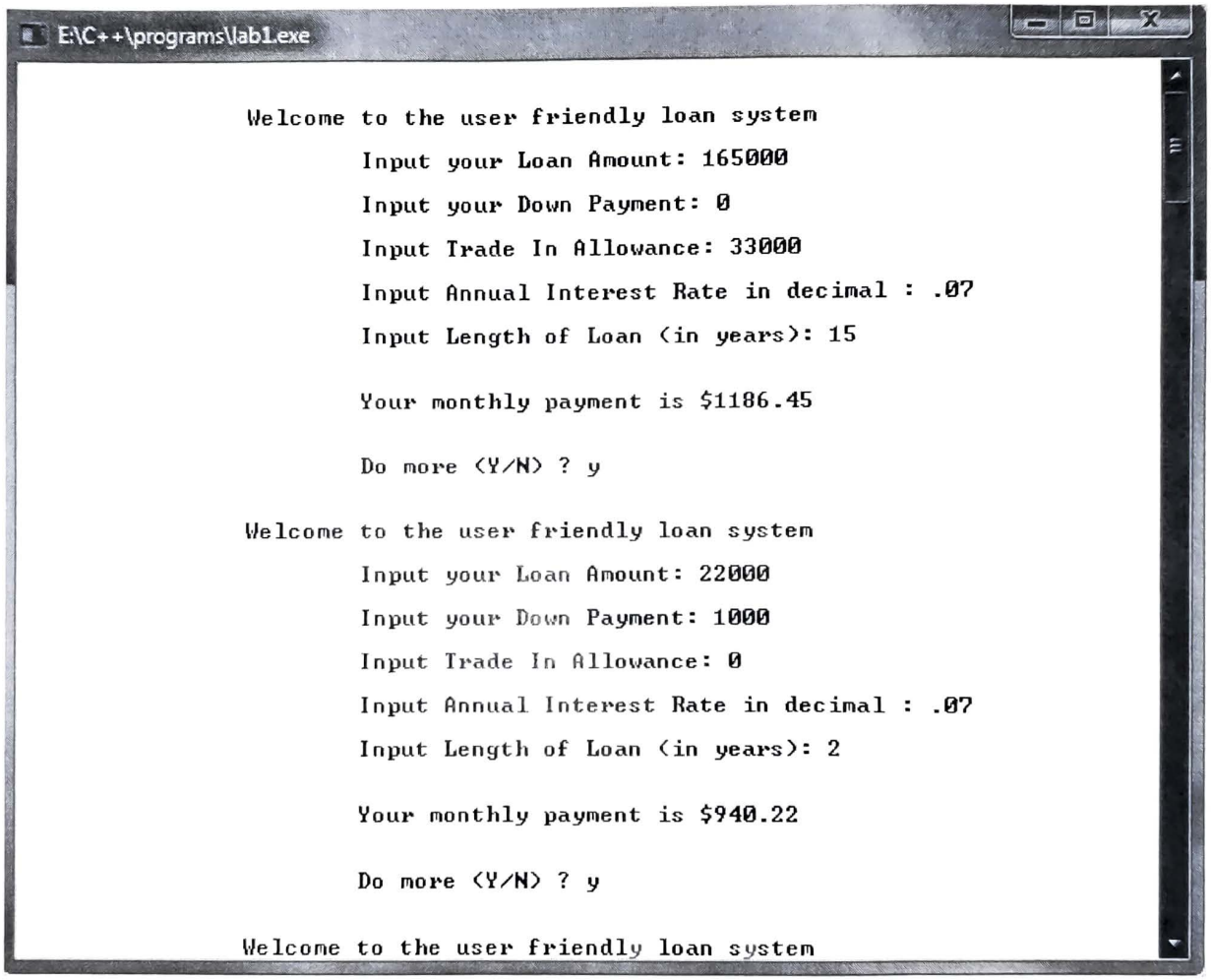
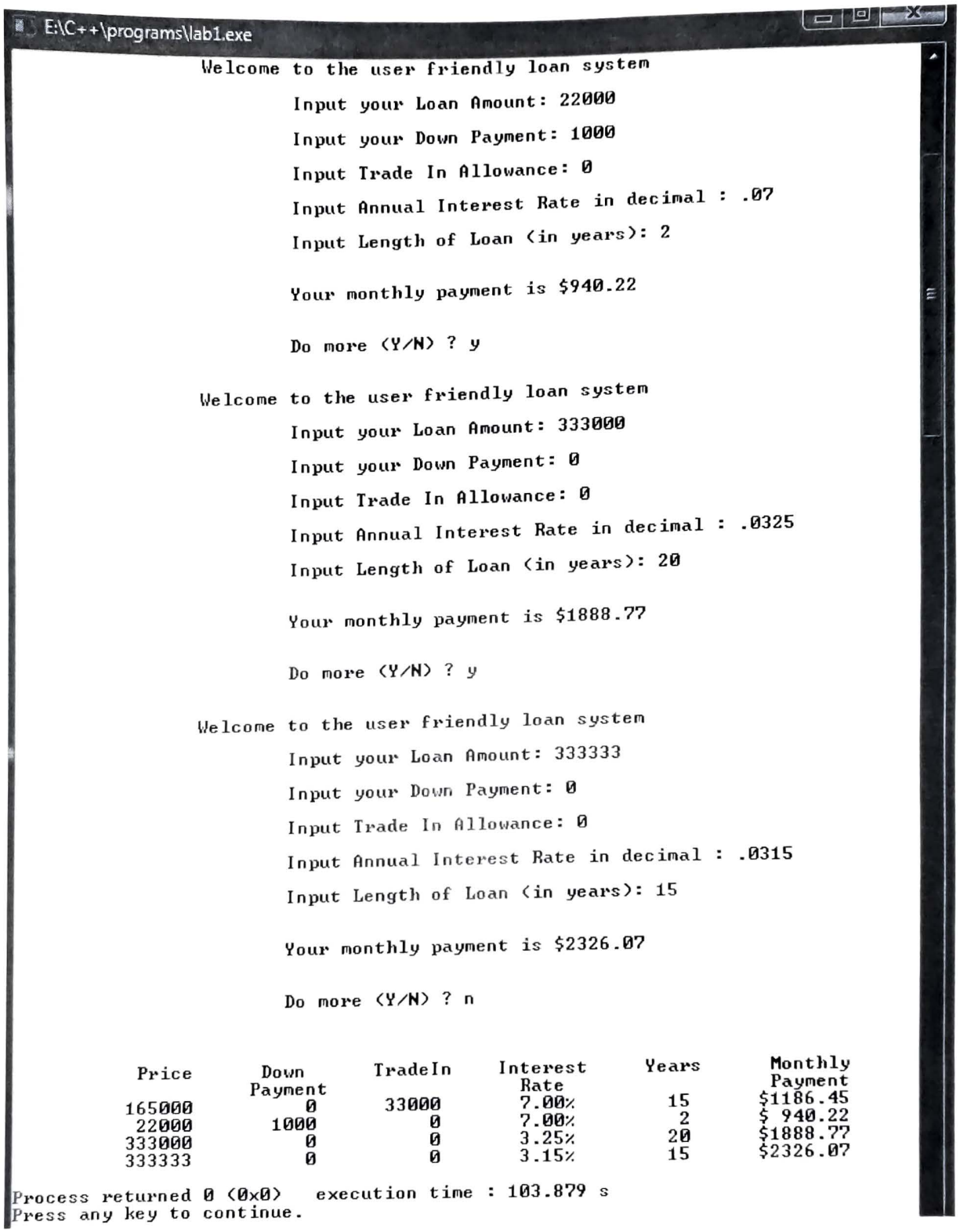
Lab – 1

Have you ever thought about loan payment problem? To solve this problem, you need to know three factors: principal, interest rate, and the length of loan. The loan amount will involve the down payment, trade in value, and others, etc. In this program, we assume it is a monthly payment problem. You should have the output as the following:




E:\C++\programs\lab1.exe
Welcome to the user friendly loan system
Input your Loan Amount: 22000
Input your Down Payment: 1000
Input Trade In Allowance: 0
Input Annual Interest Rate in decimal : .07
Input Length of Loan (in years): 2
Your monthly payment is $940.22
Do more (Y/N) ? y
Welcome to the user friendly loan system
Input your Loan Amount: 333000
Input your Down Payment: 0
Input Trade In Allowance: 0
Input Annual Interest Rate in decimal : .0325
Input Length of Loan (in years): 20
Your monthly payment is $1888.77
Do more (Y/N) ? y
Welcome to the user friendly loan system
Input your Loan Amount: 333333
Input your Down Payment: 0
Input Trade In Allowance: 0
Input Annual Interest Rate in decimal : .0315
Input Length of Loan (in years): 15
Your monthly payment is $2326.07
Do more (Y/N) ? n
Price Down Payment TradeIn Interest Rate Years Monthly Payment
165000 0 33000 7.00% 15 $1186.45
22000 1000 0 7.00% 2 $ 940.22
333000 0 0 3.25% 20 $1888.77
333333 0 0 3.15% 15 $2326.07
Process returned 0 (0x0) execution time : 103.879 s
Press any key to continue.

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//    This is lab-1, named as lab1.cpp, it can calculate the loan payment in
//    monthly.  However, this program has an almost invisible flaw, where?
//    how to fix it?  Let you have fun to figure it out!!

#include <cmath>
#include <iostream>
#include <iomanip>
#include <fstream>
#include <string>
using namespace std;

int main()
{
  float charge, down, trade, intst, mintst, year, pay, cost;
  int month;
  char more = 'y';
  ifstream inFile;
  ofstream outFile;

  outFile.open("data1.out");

  while (more == 'y' || more == 'Y')             {
    cout << "\n\n\t\tWelcome to the user friendly loan system";
    cout << "\n\n\t\t\tInput your Loan Amount: ";
    cin  >> charge;
    cout << "\n\t\t\tInput your Down Payment: ";
    cin  >> down;
    cout << "\n\t\t\tInput Trade In Allowance: ";
    cin  >> trade;
    cout << "\n\t\t\tInput Annual Interest Rate in decimal : ";
    cin  >> intst;
    cout << "\n\t\t\tInput Length of Loan (in years): ";
    cin  >> year;

    cost = charge - down - trade;
    month = year * 12;
    mintst = intst / 12;
    pay = mintst * cost * pow(1+mintst, month) / (pow(1+mintst, month) - 1);

    cout << "\n\n\t\t\tYour monthly payment is $" << setprecision(2)
                                                 <<  fixed << pay << endl;
    cout << "\n\n\t\t\tDo more (Y/N) ? ";
    cin  >> more;

    outFile << "\n\t" << setw(8) << setprecision(0) << fixed << charge
            << "     " << setw(6) << down << "\t" << setw(6) << trade
            << "\t     " << setprecision(2) << intst * 100 << "%\t " << right
            << setw(3) << (int) year << "\t  $" << setw(8) << setprecision(2)
            << pay;
  }
  outFile.close();

  std::string inLine;
  inFile.open("data1.out");
  if (inFile.fail())
    cout << "\n\t\tUnable to open the input file";
```

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 else {
   cout << "\n\n\n\t   Price      Down\tTradeIn\t   Interest\tYears\t" <<
           "   Monthly" << "\n\t\t     Payment\t\t     Rate\t\t   Payment";

   while (getline(inFile, inLine))
     cout << inLine << endl;
   inFile.close();
   getchar();
 }


 return 0;
}
```